1984 Insect Pest Management Guide

LIVESTOCK and LIVESTOCK BARNS

You must be certified as a pesticide applicator to use restricted-use pesticides. See your county Extension adviser in agriculture for information.

LIVESTOCK PRODUCERS must manage insect pests to attain maximum production. Meat, milk, wool, and egg production can be reduced by flies, lice, mites, ticks, and grubs because these pests irritate animals and some suck their blood. Occasionally, animals have even been killed by attacks of large numbers of pests like horse flies, lice, and mites. Also, several of these pests transmit diseases from animal to animal. As a result, losses from pests each year cost Illinois farmers millions of dollars. A livestock producer, however, does not need to share his profits with insects — these pests can be managed effectively.

A complete insect pest-management program includes the wise selection of cultural, mechanical, biological, and chemical methods for the major insect pests of livestock and livestock barns. Insecticides, however, are still the most efficient means of managing most insect problems, and only the safest, most effective insecticides are suggested in this circular for each specific insect on each type of livestock. Other insecticides that may have label approval for use on livestock are not included because they are less effective or more toxic or present potential residue problems. Blank spaces in the table of limitations (Table 3) indicate that we do not suggest the insecticide for that specific use in Illinois.

When using insecticides, read the label and follow instructions. Do not exceed the rates suggested, observe the interval between application and slaughter, and apply the insecticide only to those animals for which use has been approved. Keep a record of the insecticide used, trade name, percentage of active ingredients, dilution, rate of application, and dates of application so that if you are ever questioned you will have the records.

Most of the insecticides are suggested for use as emulsion concentrates because these formulations are the easiest to handle. Wettable powders can be substituted if the finished spray is well agitated.

In the tables, the common chemical names are not capitalized. Trade names, however, are capitalized. In Table 3, common names are listed first. If the trade name is more commonly used, it is listed in parentheses after the common name. In Tables 1 and 2, only the common name is used if there is one. If you need to know the trade name, refer to Table 3.

These suggestions are printed annually, so you should always use the current year's issue. Labels may be cancelled and a product removed from the market at any time, and new labels may be granted. We have attempted to anticipate any further label changes, but there may be an occasional change between issues. *None of the insecticides listed in this circular has been classified for restricted use by the U.S. Environmental Protection Agency.* We will make announcements of any further label changes through the news media to keep you up to date. If you are not sure about the insecticide you plan to use, check with your county Extension adviser.

The Illinois Department of Public Health has announced that it is illegal for dairymen to apply or store chlorinated-hydrocarbon insecticides — aldrin, chlordane, dieldrin, endrin, lindane, or heptachlor — on their farms, except for use in farm residences. Previously, use of DDT had already been prohibited except by permit from the Illinois Department of Agriculture or Public Health.

These suggestions were prepared by entomologists of the University of Illinois College of Agriculture and the Illinois Natural History Survey. Although our suggestions for the use of insecticides are based on available data, factors such as rainfall and temperature can affect the efficiency of insecticides. Report the details of any control failures to us.

Leaflets describing the life history, biology, and habits of some of the insects mentioned in this circular can be obtained from the offices of county Extension advisers or by writing to Entomology Extension, 172 Natural Resources Building, 607 E. Peabody Drive, Champaign, IL 61820. These leaflets are indicated by an NHE number in the tables. In addition, the following circulars are available from the Office of Agricultural Publications, 47 Mumford Hall, 1301 W. Gregory Drive, Urbana, IL 61801: Circular 899, 1984 Insect Pest Management Guide — Field and Forage Crops; Circular 900, 1984 Insect Pest Management Guide — Home, Yard, and Garden; Circular 925, Insect Pests of Cattle; and Circular 1136, Alfalfa Weevil Pest Management Program.

Issued in furtherance of Cooperative Extension Work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. WILLIAM R. OSCHWALD, Director, Cooperative Extension Service, University of Illinois at Urbana-Champaign. The Illinois Cooperative Extension Service provides equal opportunities in programs and employment.

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN COLLEGE OF AGRICULTURE COOPERATIVE EXTENSION SERVICE
In cooperation with ILLINOIS NATURAL HISTORY SURVEY CIRCULAR 898 (revised annually) October 1983

Table 1. DAIRY CATTLE, BEEF CATTLE, AND SWINE

(Refer to the table of limitations on the back page before using insecticides)

	Insect	Insecticide	Amount per 100 gal. water or as directed	How to apply
Dairy Cattle	Lice and chorioptic mange[5] (NHE-18)	Ciovap {crotoxyphos 10.0% + dichlorvos 2.5% E.C.	2 gal.	1 gal. per animal. Spray entire animal to saturation. Make 2 treatments 14 days apart.
	Face flies[1] (NHE-106) Horn flies[1] (NHE-59) Stable flies[4] (NHE-61)	Ciovap 1.25% O.[2]	Ready to use	1-2 oz. per animal; 2-4 times per week.[3]
		Ciovap 12.5% E.C.	1 qt. per 3 gal. water	1 pt. per animal per week or 1-2 oz. per animal 2-4 times per week from small hand sprayer or mist blower.[3]
		fenvalerate 10% W.D.L.[7]	8 oz./2½ gal. water	2-3 oz. per animal every 4-7 days.[3]
			8 oz./12 gal. water	1 qt. per animal every 7 days.[3]
Pastured cattle only	Horn flies[1] Face flies	fenvalerate 8.0% eartags	Ready to use	Place tag on front side of each ear in May.
		permethrin 10.0% eartags[7]		
	Horse and deer flies[1] (NHE-60)	pyrethrin 0.5% + synergist O.[2]	Ready to use	2 oz. per animal 3 times per week.[3]
		pyrethrin 1% + synergist E.C.	10 gal.	1-2 pt. per animal every 3 days.[3]
	Horn flies[1]	crotoxyphos 3.0% D. or 1.0% O. coumaphos 1.0% D. or 1.0% O. tetrachlorvinphos 1.0% D. or 1.0% O. dichlorvos 0.25% O. permethrin 0.15% O. or 0.25% D.	In dust bags or face and back oilers	Use only in exits of milk parlors, barns, or lanes. Apply daily. Only partially controls face and stable flies. Helps suppress lice infestations.
Beef Cattle	Lice and chorioptic mange[5] (NHE-18)	Ciovap 12.5% E.C.	2 gal.	1 gal. per animal. Spray animal to saturation. Make 2 applications 14 days apart.
	Lice	chlorpyrifos 43.2% E.C.	Ready to use	Apply 2 cc per 100 lb. bodyweight. Maximum of 16 cc per animal. Apply in spot on top line just behind shoulder.[6]
		fenthion 7.6% E.C.	1 pt. per gal. water	Apply 1 oz. per 100 lb. body weight. Maximum of 8 oz. per animal. Pour on topline from shoulders to hips. Repeat in 14 days.
	Face flies[1] Horn flies[1] Stable flies[4]	Ciovap 12.5% E.C.	1 qt. per 3 gal. water	1-2 oz. per animal; 2-4 times per week from a mist blower.[3]
				1 pt. per adult animal per week.[3]
		Ciovap 1.25% O.[2]	Ready to use	1-2 oz. per animal; 2-4 times per week.[3]
		fenvalerate 10% W.D.L.[7]	8 oz./2½ gal. water	2-3 oz. per animal every 4-7 days.[3]
			8 oz./12 gal. water	1 qt. per animal every 7 days.[3]
Pastured cattle only	Horn flies[1] Face flies	fenvalerate 8.0% eartags	Ready to use	Place tag on front side of each ear in May.
		permethrin 10.0% eartags[7]		
	Horse and deer flies[1]	Use as directed for dairy cattle above.		
	Horn flies[1]	Dust bags and oilers:	Various insecticides are approved for use in face oilers, back oilers, and dust bags. Force treat if possible, but always place in location for greatest use. Only partially controls stable and face flies. Keep device well charged and in good working order.	
	Grubs	Systemic insecticides like coumaphos, famphur, fenthion, phosmet, and trichlorfon as sprays or pour-ons provide excellent control of grubs and good control of lice. Use only on *native beef cattle* in herds having a history of grub problems. Treat only those animals between 4 months and 2½ years of age. Apply during August or September in the southern half of the state and in September or October in the northern half of the state. Animals in confinement are not attacked by ox warble flies.		
Swine	Mange and lice	malathion 50–57% E.C.	1 gal.	2-4 qt. per animal. Spray animal to saturation. Make 2 applications 14 days apart.
		permethrin 5.7% E.C.	1 gal.	
	Lice	fenthion 3% O.	Ready to use	Apply ½ oz. per 100 lb. body weight. Pour on topline from neck to rump.

Note: E.C. = emulsion concentrate, O. = oil solution, W.P. = wettable powder, D. = dust, W.D.L. = water-dispersible liquid.

[1] Place cattle in barns or sheds to avoid attack by face flies, horn flies, horse flies, and deer flies. Apply treatments when there are fifteen or more face flies, fifty or more horn flies, or one or more horse flies per animal.

[2] Apply from small hand sprayer or automatic sprayer. The same dosage of a water-base spray may be used.

[3] Spray head, back, sides, belly, and legs carefully. Start treatments in May and continue to September.

[4] Remove decaying straw, hay, manure, and feed from barns and lots and spread to dry each week, or cover manure pile with black plastic so stable fly breeding will be reduced. Apply treatments when there are four or more stable flies per animal.

[5] Cattle scabies is caused by psoroptic mange mites, which are different from chorioptic mange mites. Scabies is a quarantinable disease. Illinois is currently free of cattle scabies. For information, contact the Illinois Department of Agriculture, Bureau of Animal Health, Illinois State Fairgrounds, Springfield, IL 62706, 217/782-4944.

[6] Because of the small amount of material used, care must be taken to apply the proper dose. See Table 3 for precautions.

[7] A state-labeled insecticide. The applicator must have the label in possession when applying.

Table 2. SHEEP, GOATS, HORSES, CHICKENS, LIVESTOCK BARNS, AND SHEDS

(Refer to the table of limitations on the back page before using insecticides)

	Insect	Insecticide	Amount per 100 gal. water or as directed	How to apply
Sheep	Keds, lice, and fleeceworms (NHE-53)	diazinon 50% W.P.	½ oz. per 3 gal. water	Apply 1 qt. per animal from sprinkling can over back, head, and neck.[9]
	Scab	Illinois is free of sheep scab. For information, contact the Illinois Department of Agriculture, Bureau of Animal Health, Illinois State Fairgrounds, Springfield, IL 62706, 217/782-4944.		
Goats *Pastured goats only*	Face flies[1] Stable flies	Ciovap 12.5% E.C.	1 qt. per 3 gal. water	1 pt. per animal per week.
	Horse and deer flies[1]	Use pyrethrin as directed for dairy cattle.		
	Lice	Ciovap 12.5% E.C.	2 gal.	2-4 qt. per animal. Repeat in 14 days.
Horses *Pastured horses only*	Face flies,[1] stable flies,[2] horse and deer flies[1]	fenvalerate 10% W.D.L.[6]	4 oz. per 3 gal. water	8 oz. per animal every 4-7 days.[3]
		pyrethrin 1.0% + synergist E.C.	1 pt. per 1 pt. water	1-2 oz. as a mist over the entire animal 2-4 times per week.[3]
	Black flies[1]	petroleum jelly	Ready to use	Apply a thin coating on inside of ears. Use pyrethrin as suggested above for flies.
	Lice	malathion 4.0-5.0% D.	3 tbl. per animal	Apply on back and neck of animals. Repeat in 14 days.
Chickens	Northern fowl mites, common red mites, bedbugs, and lice (NHE-54)	carbaryl 80% W.P.	4 oz. per 5 gal. water	Spray birds using 1 gal. per 100 birds for fowl mites and lice. Use 125 psi pressure when treating for fowl mites. Spray roosts, walls, and around nests for red mites and bedbugs. Dust of 5% carbaryl, 0.5% coumaphos, 4% malathion, or 3% tetrachlorvinphos may be used on litter for control of northern fowl mites and lice. Keep wild birds from entering or nesting in poultry houses.
		coumaphos 25% W.P.	3 oz. per 5 gal. water[4]	
		malathion 50–57% E.C.	5 oz. per 5 gal. water[4]	
		permethrin 5.7% E.C.[8]	6.5 oz. per 5 gal. water	
		Ravap (tetrachlorvinphos 23% + dichlorovos 6% E.C.)	13 oz. per 5 gal. water	
		tetrachlorvinphos 50% W.P.	6.5 oz. per 5 gal. water	
Residual Sprays for Livestock Barns and Sheds[2]	House flies (NHE-16, 88), stable flies, and other flies	dimethoate 23% E.C.	4 gal.	Start treatments in June and maintain good sanitation. Apply 2 gal. per 1,000 sq. ft. or apply to the point of runoff (drip) to ceilings, walls, and support posts and outside around doors and windows. Lasts about 2-4 weeks.[5]
		fenthion 45% E.C.	3 gal.	Lasts about 2-5 weeks.[5] Apply as for dimethoate.
		permethrin 5.7% E.C.	2 gal.	Lasts about 3-7 weeks.[5] Apply 1 gal. per 750-1000 sq. ft.
		permethrin 10.0% E.C.	1 gal.	
		permethrin 25% W.P.	3⅓ to 6⅔ lb.	
		Ravap 29% E.C.	4 gal.	Lasts about 2-4 weeks.[5] Apply as for dimethoate.
		tetrachlorvinphos 50% W.P.	16 lb.	
Space Sprays for Feedlots and Sheds[2]	House flies, stable flies, and other flies	dichlorvos 23% E.C.	2 gal.	Apply 5 gal. per acre with mist blower over animals and pens every 3 to 7 days.
		dichlorvos 43% E.C.	1 gal.	
		naled 58% E.C.[7]	5 pts.	Apply as for dichlorvos.
		pyrethrin E.C.	Dilute to 0.1% with water	Apply as for dichlorvos.
Baits as Supplements for Livestock Barn and Shed Sprays[2]	House flies	dichlorvos 23% E.C.	4 oz. per 1 gal. corn sirup + ½ gal. warm water	Apply to favorite fly-roosting areas from tank sprayer as needed to supplement residual spray treatment.
		naled 58% E.C.	1 oz. per 1 gal. corn sirup + ½ gal. warm water	Apply as for dichlorvos.

Note: E.C. = emulsion concentrate, O. = oil solution, W.P. = wettable powder, D. = dust, W.D.L. = water-dispersible liquid.

[1] Place horses or goats in barns or sheds to avoid attack by face flies, black flies, horse flies, and deer flies.

[2] Good sanitation is the basic step in barn fly control (house and stable flies). Remove manure, decaying straw, hay, and feed and spread to dry each week, or cover manure pile with black plastic. Leave an 8-inch residue of manure in the pits or pens if the interval between cleanups is more than 1 week.

[3] Spraying may upset horses. Avoid getting spray into the animal's eyes.

[4] Double the insecticide-to-water ratio for spraying roosts, walls, and around nests.

[5] Lasting effects are shortened during periods of hot, dry weather.

[6] A state-labeled insecticide. The applicator must have the label in possession when applying.

[7] Temporary stinging of eyes may occur from mist but is not hazardous. Rinse equipment thoroughly after use to avoid corrosion

[8] Apply as a spray to birds (1 gal. per 100 birds) for control of northern fowl mites only.

[9] Stir the diazinon suspension frequently.

Table 3. LIMITATIONS FOR SUGGESTED INSECTICIDES APPLIED TO LIVESTOCK OR IN LIVESTOCK BARNS

(Blank spaces in the table mean that the material is not suggested for that specific use in Illinois)

	Dairy		Beef		Swine		Sheep		Goats		Horses		Chickens	
	Animals	Barns	Animals	Barns	Animals	Barns	Animals	Barns	Animals	Barns	Animals	Barns	Birds	Barns
carbaryl (Sevin)	...	...	...	...	...	...	...	...	...	...	...	...	A,B	A,B
chlorpyrifos (Dursban)	...	...	C,D,S	...	...	...	...	...	...	...	...	...	...	...
Ciovap	C,D,F	...	C,D,F	...	...	...	...	...	C,D,F,G	...	...	...	...	...
coumaphos (Coral)	C,D	...	C,D,E	...	...	...	...	...	...	...	...	...	B	B
crotoxyphos (Ciodrin)	C,D,F	...	C,D,F	...	...	...	...	...	...	...	...	...	...	...
diazinon	...	...	...	...	...	...	C,D,I	...	...	...	...	...	...	...
dichlorvos (DDVP) (Vapona)	C,D	J,K	C,D	J,K	...	J,K	...	J,K	...	J,K	...	J,K	...	J
dimethoate (Cygon)	...	D,H,V	...	D,H,V	...	D,H,V	...	D,H,V	...	D,H,V	...	D,H,V	...	B,H,V
famphur (Warbex)	...	...	C,D,E,R	...	...	...	...	...	...	...	...	...	...	...
fenthion (Baytex, Tiguvon, Lysoff)	...	C,D	C,D,E,L	C,D	M,N	...	...	...	...	...	...	...	...	B
fenvalerate (Ectrin and others)	C,D,T	...	C,D,T	...	...	...	...	...	...	...	C,D,W	...	...	...
malathion	...	...	...	...	C,D	...	...	...	...	...	C,D	...	B	B
naled (Dibrom)	...	C,J,K	...	J,K	...	J,K	...	J,K	...	J,K	...	J,K	...	J
permethrin (Ectiban and others)	C,T	B,U	C,T	B,U	C,D	B,U	...	B,U	...	B,U	...	B,U	B	B,U
phosmet (Prolate)	...	...	C,D,E,O	...	...	...	...	...	...	...	...	...	...	...
pyrethrin	C	K	C	K	...	K	...	K	C	K	C	K	...	...
Ravap	...	C,D	...	C,D	...	C,D	...	C,D	...	C,D	...	C,D	B,P	B
stirofos (Rabon)	C,D	C,D	C,D	C,D	...	C,D	...	C,D	...	C,D	C,D	C,D	B,P	B
toxaphene	...	...	...	...	...	...	C,Q	...	...	...	...	...	...	...
trichlorfon (Neguvon)	...	...	C,D,E,M	...	...	...	...	...	...	...	...	...	...	...

A. Do not apply within 7 days of slaughter and do not treat nesting material. Do not repeat within 4 weeks.
B. Gather eggs before treatment and do not contaminate feed and water.
C. Do not contaminate feed, water, milk, or milking equipment.
D. Do not apply in conjunction with the feeding of phenothiazine or organophosphate insecticides.
E. Do not treat: animals less than 6 months old; sick or stressed animals within 10 days of shipping; or animals in a confined, nonventilated area.
F. Do not apply within 1 day of slaughter and do not treat Brahman cattle.
G. Do not repeat more often than every 7 days.
H. When used as a spray, remove animals before treating barn. Do not contaminate feed, water, eggs, milk, or milking equipment. Do not use in milk storage rooms. Do not apply to animals.
I. Do not apply within 14 days of slaughter. Do not treat lambs less than 2 weeks old.
J. As a bait. Do not apply within reach of animals or in milk rooms. Do not contaminate feed, water, eggs, milk, or equipment.
K. As a space spray in feedlots, corrals, or pens; may be applied with animals present, but avoid direct application to exposed feed and water. Do not apply in conjunction with the feeding of phenothiazine or the feeding or use as animal or shelter treatments of organophosphate or carbamate insecticides.
L. Do not apply within 45 days of slaughter.
M. Do not apply within 14 days of slaughter.
N. Do not use in conjunction with organophosphate or carbamate insecticides.
O. Do not apply within 21 days of slaughter. Do not repeat treatment within 10 days.
P. Do not repeat more often than every 14 days. If used on walls for fly control, do not apply to birds.
Q. Do not apply within 28 days of slaughter.
R. Do not apply within 35 days of slaughter.
S. Do not treat dairy cattle, continental or exotic breed cattle, bulls, cows within 21 days before or 14 days after calving, veal calves, calves under 12 weeks old, animals under 200 pounds, sick or stressed animals, or cattle 10 days before or after shipping, dehorning, castration, vaccination, etc. Do not slaughter animals within 14 days of treatment. A retreatment may be applied in 30 days, but cattle then may not be slaughtered for 21 days after the second treatment. Do not use any drug or chemical that is a cholinesterase inhibitor simultaneously or within 45 days before or after treatment.
T. Remove tags before slaughter.
U. Do not treat manure or litter. Do not apply directly to animals. Cover all feed and water supplies. Do not retreat more than once every 2 weeks.
V. Protective clothing must be worn during application.
W. Do not treat horses intended for slaughter.

FOR YOUR PROTECTION

1. Wear rubber gloves when handling insecticide concentrates.
2. Do not smoke while handling or using insecticides.
3. Keep your face turned to one side when opening insecticide containers.
4. Leave unused insecticides in their original containers with the labels on them.
5. Store insecticides out of the reach of children, irresponsible persons, or animals; store preferably in a locked cabinet or room, away from food, feed, or water.
6. Triple-rinse, puncture, and bury or burn empty containers, or take them to an approved sanitary landfill.
7. Do not put the water-supply hose directly into the spray tank.
8. Do not blow out clogged nozzles or spray lines with your mouth.
9. Wash with soap and water all exposed parts of the body and clothes contaminated with insecticide.
10. Do not leave puddles of spray on impervious surfaces.
11. Do not apply to or allow runoff into fish-bearing or other water supplies. Do not allow treated animals in fish-bearing or other water supplies until the spray has dried.
12. Do not apply insecticides, except in an emergency, to areas with abundant wildlife or to blossoming crops visited by bees. Avoid drift onto blossoming crops and onto beehives.
13. Do not apply insecticides near dug wells or cisterns.
14. Do not spray when weather conditions favor drift.
15. Follow all directions and precautions on the label.

9M—10-83—57790—SZ